

# Actual Production History — Crop Insurance

Department of Agricultural Economics — [www.agmanager.info](http://www.agmanager.info)



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The goal of the Crop Insurance Act of 1980 was to make crop insurance available to growers of major crops as a replacement for the USDA's low-yield disaster program. Crop insurance is marketed by local private crop insurance agents who, in most cases, sell crop insurance along with other lines of insurance.

Growers also may select catastrophic (CAT) coverage at the 50 percent level with 55 percent of the market price. The coverage is "free" but will require the grower to pay a \$100 processing fee. Growers who purchase coverage above CAT receive a higher dollar subsidy. Growers also pay a \$30 administrative fee.

The focus of this worksheet is to provide a method for farmers to evaluate APH (MPCI) and catastrophic coverage. This worksheet does not cover private hail/fire crop insurance.

**APH insurable losses include:** Drought, excessive moisture, hail, wind, frost/freeze, tornado, lightning, flood, insect infestation, plant disease, excessive temperature during pollination, wildlife damage, fire, and earthquakes.

APH does not cover losses resulting from poor farming practices, low commodity prices, theft, and specified perils, which are excluded in a limited number of policies.

**Crops insurable:** The crops that are insurable (may vary by county) include cotton, barley, soybeans, corn, grain sorghum, and wheat. Other crops are covered only in selected counties.

**Premium rates:** *Premium percentage rates decline as the grower's insurance yield increases.* A grower with a top yield average for the county typically pays a premium rate of about one-third of the premium rate paid by a grower with a yield history well below county average. The premium rates also change to reflect the difference in crop production risk across the state of Kansas.

**Coverage:** Coverage is set at 50, 55, 60, 65, 70, 75, 80, or 85 percent of the individual grower's yield history. If the

grower has less than four years of records, then adjusted NASS yields are used for the missing years' records (this approach ended using county average yields to set the coverage for individuals).

**Price election:** Farmers may select any price election within a minimum and maximum price range set by RMA.

**Table 1. Example: Premium for Central Kansas (2007)**

|                                                           | Example   | Your Farm |
|-----------------------------------------------------------|-----------|-----------|
| Average Yield for Insurance                               | 40 bu     | _____     |
| × Coverage Level (50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%) | 70%       | _____     |
| = Bushels per Acre Yield Guarantee                        | 28 bu     | _____     |
| × Wheat Price Election (\$2.34, up to \$3.90)             | \$ 4.90   | _____     |
| = Liability                                               | \$ 137.20 | _____     |
| × Rate                                                    | 3.88%     | _____     |
| = Dollar Premium per Acre                                 | \$ 5.32   | _____     |

**Table 2. Example: Indemnity Payment for Central Kansas (2007)**

|                                                           | Example  | Your Farm |
|-----------------------------------------------------------|----------|-----------|
| Average Yield for Insurance                               | 40 bu    | _____     |
| × Coverage Level (50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%) | 70%      | _____     |
| = Bushels per Acre Yield Guarantee                        | 28 bu    | _____     |
| – Less Current Year's Crop Production (bu)                | 10 bu    | _____     |
| = Bushel Loss per Acre                                    | 18 bu    | _____     |
| × Price Election (\$2.10, up to \$3.50)                   | \$ 4.90  | _____     |
| = Indemnity Payment per Acre                              | \$ 88.20 | _____     |
| – Less Premium                                            | \$ 5.32  | _____     |
| = Net Indemnity Payment per Acre                          | \$ 82.88 | _____     |

**MPCI-APH Worksheet**  
**Analysis of Per Acre Net Cash Flow**

Crop: \_\_\_\_\_

Situation: \_\_\_\_\_

|                                                                                                | Disaster Year<br>Central Kansas<br>With Insurance |                   | Typical Year<br>Central Kansas<br>With Insurance |                   | Disaster Year<br>Central Kansas<br>Without Insurance |                   |
|------------------------------------------------------------------------------------------------|---------------------------------------------------|-------------------|--------------------------------------------------|-------------------|------------------------------------------------------|-------------------|
|                                                                                                | Without Insurance                                 | Without Insurance | Without Insurance                                | Without Insurance | Without Insurance                                    | Without Insurance |
| <b>Projected Crop Sales and Other Cash Inflows</b>                                             |                                                   |                   |                                                  |                   |                                                      |                   |
| 1. Enter Yield per Planted Acre                                                                | 10.0                                              | 10.0              | _____                                            | _____             | _____                                                | _____             |
| 2. Expected Market Price + LDP                                                                 | \$4.90                                            | \$4.90            | _____                                            | _____             | _____                                                | _____             |
| 3. Expected Sales: (Line 1 × Line 2)                                                           | \$49.00                                           | \$49.00           | _____                                            | _____             | _____                                                | _____             |
| 4. Counter Cyclical Payment                                                                    | \$0.00                                            | \$0.00            | _____                                            | _____             | _____                                                | _____             |
| 5. Enter Other Reciepts<br>(Direct Payment, <sup>1</sup> straw, etc.)                          | \$21.43                                           | \$21.43           | _____                                            | _____             | _____                                                | _____             |
| 6. Total Receipts: (Line 3 + Line 4 + line 5)                                                  | \$70.43                                           | \$70.43           | _____                                            | _____             | _____                                                | _____             |
| <b>MPCI-APH Premium</b>                                                                        |                                                   |                   |                                                  |                   |                                                      |                   |
| 7. Average Yield for Insurance (APH)                                                           | 40.0                                              | _____             | _____                                            | _____             | _____                                                | _____             |
| 8. Coverage Level (50% 55% 65%<br>70% 75% 80% 85%)                                             | 70%                                               | _____             | _____                                            | _____             | _____                                                | _____             |
| 9. Enter Price Election <sup>2</sup>                                                           | \$4.90                                            | _____             | _____                                            | _____             | _____                                                | _____             |
| 10. Liability: Line 7 × Line 8 × Line 9                                                        | \$137.20                                          | _____             | _____                                            | _____             | _____                                                | _____             |
| 11. Enter Premium Rate for the Desired<br>Level of Coverage <sup>3</sup>                       | 3.88%                                             | _____             | _____                                            | _____             | _____                                                | _____             |
| 12. Insurance Premium: Line 10 × Line 11                                                       | \$5.32                                            | _____             | _____                                            | _____             | _____                                                | _____             |
| <b>Projected Crop Cash Requirements</b>                                                        |                                                   |                   |                                                  |                   |                                                      |                   |
| 13. Enter Preharvest Cash Operating Expense <sup>4</sup>                                       | \$86.42                                           | \$86.42           | _____                                            | _____             | _____                                                | _____             |
| 14. Enter Harvest Cash Expense per Acre                                                        | \$16.12                                           | \$16.12           | _____                                            | _____             | _____                                                | _____             |
| 15. Enter Expenses/Bushel (\$0.15 x Yield) <sup>5</sup>                                        | \$1.50                                            | \$1.50            | _____                                            | _____             | _____                                                | _____             |
| 16. Debt Service, Family Living Expense, and<br>Other Fixed Cash Requirements <sup>6</sup>     | \$48.58                                           | \$48.58           | _____                                            | _____             | _____                                                | _____             |
| 17. Total Cash Requirements: (Sum Line 14 to Line 18)<br>Line 13 + Line 14 + Line 15 + Line 16 | \$152.62                                          | \$152.62          | _____                                            | _____             | _____                                                | _____             |
| <b>Projected MPCI-APH Payment Received</b>                                                     |                                                   |                   |                                                  |                   |                                                      |                   |
| 18. Enter Line 7 × Line 8 (bu.)                                                                | 28.0                                              | _____             | _____                                            | _____             | _____                                                | _____             |
| 19. Enter Line 18 - Line 1 (enter zero if<br>answer is a negative number)                      | 18.0                                              | _____             | _____                                            | _____             | _____                                                | _____             |
| 20. Insurance Payment Received:<br>(Line 19 × Line 9)                                          | \$88.20                                           | _____             | _____                                            | _____             | _____                                                | _____             |
| 26. Net Cash Flow:<br>(Line 5 - Line 12 - Line 19 + Line 25) <sup>7</sup>                      | \$0.69                                            | -\$82.19          | _____                                            | _____             | _____                                                | _____             |

<sup>1</sup>Direct payment is not subject to price or yield risk but the counter cyclical payment is subject to price risk.

<sup>2</sup>Price elections and revenue prices are available from local insurance agents.

<sup>3</sup>Premium rates for a specific farm and proven yield can be obtained from insurance agents.

<sup>4</sup>Obtain crop expense estimates from your records or KSU Farm Management Association Summary. Use only cash expenses because this is a cash flow analysis.

<sup>5</sup>With a low yield, cash expenses of some harvest costs, such as trucking and storage, decline.

<sup>6</sup>Debt load, off farm income and/or livestock enterprises will affect cash requirements. Assumes \$53,329 for family living cost and 1,600 acres of crop land (Source: KSU Farm Management Association Summary).

<sup>7</sup>Net cash flow was used for the analysis because normally a farm will not be profitable when a crop disaster occurs. The farmer's short-term strategy is to cover cash flow requirements.

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